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RWE Renewables UK Solar and Storage Ltd

Agricultural Land Classification and Soil Resources

Butterfly Solar Farm

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1 Introduction

- 1.1 Reading Agricultural Consultants Ltd (RAC) is instructed by RWE Renewables UK Solar and Storage Ltd to investigate the Agricultural Land Classification (ALC) and soil resources across three separate sites at the proposed Butterfly Solar Farm, south of Wrexham, by means of a semi-detailed reconnaissance survey of soil and site characteristics.
- 1.2 Guidance for assessing the quality of agricultural land in England and Wales is set out in the Ministry of Agriculture, Fisheries and Food (MAFF) revised guidelines and criteria for grading the quality of agricultural land¹, and summarised in Welsh Government's Frequently Asked Questions².
- 1.3 Agricultural land in England and Wales is graded between 1 and 5, depending on the extent to which physical or chemical characteristics impose long-term limitations on agricultural use. The principal physical factors influencing grading are climate, site conditions and soil which, together with interactions between them, form the basis for classifying land into one of the five grades.
- 1.1. Grade 1 land is excellent quality agricultural land with very minor or no limitations to agricultural use. Grade 2 is very good quality agricultural land, with minor limitations which affect crop yield, cultivations or harvesting. Grade 3 land has moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield, and is subdivided into Subgrade 3a (good quality land) and Subgrade 3b (moderate quality land). Grade 4 land is poor quality agricultural land with severe limitations which significantly restrict the range of crops and/or level of yields. Grade 5 is very poor quality land, with severe limitations which restrict use to permanent pasture or rough grazing.
- 1.4 Land which is classified as Grades 1, 2 and 3a in the ALC system is defined in paragraph 3.58 of Planning Policy Wales³ as the best and most versatile (BMV) agricultural land.
- 1.5 The Welsh Government published a Predictive Agricultural Land Classification Map in 2017, updated in 2019. The map is designed on a 50m grid. Criteria including climate, slope, soil

¹ **MAFF (1988).** *Agricultural Land Classification of England and Wales. Revised guidelines and criteria for grading the quality of agricultural land.* <http://publications.naturalengland.org.uk/file/5526580165083136>

² **Welsh Government (2021).** *Agricultural Land Classification: Frequently Asked Questions.* [Agricultural land classification: frequently asked questions \(gov.wales\)](https://gov.wales/agricultural-land-classification-frequently-asked-questions)

³ **Welsh Government (2024).** *Planning Policy Wales.* Edition 12. [Planning Policy Wales - Edition 12](#)

wetness, droughtiness and stone contents have been considered and used to determine the most likely limitation to agricultural land quality within each grid square.

- 1.6 The Predictive ALC Map shows all three sites as predominantly Subgrade 3b with smaller areas of Subgrade 3a and Grade 2 also mapped in the eastern site (Site 3).

2 Site and climatic conditions

General features, land form and drainage

- 2.1 The three sites are located approximately 4km to the south-west (Site 1), south (Site 2) and south-east (Site 3) of Wrexham and collectively the total site red line boundary (of which 102 ha consists of a panelled area) extends to approximately 146 ha.
- 2.2 Site 1 extends to approximately 21ha of grassland, with both sheep and cattle grazing at the time of survey. This site is located to the immediate east of the A483 and to the north of the Bangor Road (B5426). An unnamed track runs through the site orientated east-west. Other agricultural land in a mix of arable and grassland borders surrounds the site to the north, east and south. The land is undulating and slopes gently eastwards from the A483 at approximately 100m Ordnance Datum (AOD) to 95m AOD.
- 2.3 Site 2 comprises three parcels which in total extend to approximately 66ha of arable and grassland, with the land under grass, maize and wheat at the time of survey. The site is located north of the B5426 and south of Bwgan-Ddu Lane, with Plassey Golf Club bordering the site to the south-east and other agricultural land forming the remaining boundaries. An unnamed road runs north-south and separates the largest parcel, to the east of the road, from two smaller parcels to the west. The land generally slopes eastward from approximately 95m AOD in the west of the site to 60-65m AOD in the east.
- 2.4 Site 3 extends to approximately 43ha of arable land. This site is bounded to the north by Kiln Lane (B5130) and Gerwyn Hall, to the south-east by Gerwyn-Fechan and in other directions by other agricultural land. Non-agricultural land within the site comprises a belt of woodland in the west. The land slopes gently from the north at a highest elevation of approximately 52m AOD down to the south-east to around 30m AOD.

Agro-climatic conditions

- 2.5 Agro-climatic data at Sites 1, 2 and 3 have been interpolated from the Meteorological Office's standard 5km grid point data set at representative altitudes of 98m, 81m and 30m AOD respectively and are given in Table 1.
- 2.6 The climate at Sites 1 and 2 is moderately cool and wet with moderate moisture deficits. The number of Field Capacity Days (FCD) is high and is unfavourable for providing opportunities for agricultural field work. The climate at Site 3 is moderately warm and moist with moderate to moderately large moisture deficits. The number of FCD is slightly unfavourable for providing opportunities for agricultural field work.

Table 1: Local agro-climatic conditions

Parameter	Site 1	Site 2	Site 3
Average Annual Rainfall	826mm	805mm	737mm
Accumulated Temperatures >0°C	1369 day°	1387 day°	1449 day°
Field Capacity Days	193 days	186 days	173 days
Average Moisture Deficit, wheat	90mm	92mm	103mm
Average Moisture Deficit, potatoes	77mm	80mm	94mm

Soil parent material and soil type

- 2.7 The principal underlying geology mapped by the British Geological Survey⁴ within the collective site boundaries includes:
- the Etruria Formation, mapped across Site 1, which comprises variably coloured, commonly mottled mudstone;
 - the Salop Formation, mapped across Site 2 and the west of Site 3, which comprises red and red-brown mudstone and red-brown sandstone containing beds of pebbly sandstone and conglomerate; and
 - the Kinnerton Sandstone Formation, mapped across central and eastern areas of Site 3, comprising red-brown to yellow, fine to medium grained sandstone.
- 2.8 Superficial glacial till deposits are mapped across Sites 1, 2 and the north of Site 3. These comprise unsorted or poorly sorted sediment ranging in size suspended in a mud or sand matrix.
- 2.9 River Terrace Deposits are mapped across the remainder of Site 3 to the south and comprise sand and gravel.

⁴ **British Geological Survey (2025).** *Geology viewer*, <https://www.bgs.ac.uk/map-viewers/bgs-geology-viewer/>

- 2.10 The Soil Survey of England and Wales soil association mapping⁵ (1:250,000 scale) shows the Salop 1 association across all three sites.
- 2.11 Soils of the Salop 1 association are characterised by reddish, fine loamy over clayey, fine loamy and clayey soils associated with fine loamy over clayey soils. Profiles, when undrained, are waterlogged for long periods in winter and are typically assessed as Wetness Class (WC) IV⁶. Soils can be improved to WC III with underdrainage.

3 Agricultural land quality

Soil survey methods

- 3.1 In total, 36 soil profiles were examined within the three sites. Six profiles were observed at Site 1, 21 profiles at Site 2 and 9 at Site 3. Soil profiles were examined using an Edelman (Dutch) auger at a reconnaissance observation density of one per four hectares. Two observation pits were attempted to examine subsoil structures with limited success due to the extremely dry ground conditions at the time of survey (shown in Appendix 3). The survey originally covered a wider area than the current site, particularly extending to the south and east of Site 3 but areas identified in the original survey as BMV land in Sites 2 and 3 have since been excluded from the current site boundaries.
- 3.2 The locations of observations are shown on Figures RAC/9609/1.1, RAC/9609/1.2 and RAC/9609/1.3. The observation numbers reflect the original survey locations and are therefore not always sequential, with for example original observations 25 and 27 excluded from Site 2, and observations 32-38 and 46-53 excluded from Site 3. One soil pit was also attempted outside the current boundary of Site 3 but the results remain relevant. At each observation point the following characteristics were assessed for each soil horizon up to a maximum of 120cm or any impenetrable layer:
- soil texture;
 - significant stoniness;
 - colour (including localised mottling);
 - consistency;

⁵ Soil Survey of England and Wales (1984). *Soils of Wales* (1:250,000), Sheet 2

⁶ Rudeforth et al (1984). *Soils and Their Use in Wales*. Soil Survey of England and Wales Bulletin 11, Harpenden.

- structural condition;
- free carbonate; and
- depth.

- 3.3 Two topsoil samples were submitted for laboratory determination of particle size distribution, pH, organic matter content and nutrient contents (P, K, Mg). Results are presented in Appendix 1.
- 3.4 Soil Wetness Class (WC) was determined from the matrix colour, presence or absence of, and depth to, greyish and ochreous gley mottling, and slowly permeable subsoil layers at least 15cm thick, in relation to the number of Field Capacity Days at the location.
- 3.5 Soil droughtiness was investigated by the calculation of moisture balance equations (given in Appendix 2). Crop-adjusted Available Profile Water (AP) is estimated from texture, stoniness and depth, and then compared to a calculated moisture deficit (MD) for the standard crops wheat and potatoes. The MD is a function of potential evapotranspiration and rainfall. Grading of the land can be affected if the AP is insufficient to balance the MD and droughtiness occurs.

Agricultural land classification and site limitations

- 3.6 Assessment of land quality has been carried out according to the revised ALC guidelines¹. Soil profiles have been described according to Hodgson⁷ which is the recognised source for describing soil profiles and characteristics according to the revised ALC guidelines.
- 3.7 There is one main soil type present across most of the three sites. The topsoil comprises heavy clay loam or medium clay loam and is typically dark brown (7.5YR3/3, 10YR3/3 in the Munsell soil colour charts⁸), dark grey (7.5YR4/1) or dark greyish brown (10YR4/2).
- 3.8 The upper subsoil comprises heavy clay loam or clay which is predominantly brown (10YR5/3, 7.5YR5/3, 7.5YR4/2), reddish brown (5YR5/3) or greyish brown (10YR5/2). The upper subsoil is variably permeable and largely contains ochreous mottling indicating prolonged periods of wetness.

⁷ Hodgson, J. M. (Ed.) (1997). *Soil survey field handbook*. Soil Survey Technical Monograph No. 5, Silsoe.

⁸ Munsell Color (2009). *Munsell Soil Color Book*. Grand Rapids, MI, USA

- 3.9 The lower subsoil comprises clay which is predominantly brown (10YR5/3, 7.5YR4/2, 7.5YR5/2, 7.5YR5/3) or reddish brown (5YR5/3). Soils within this horizon contain ochreous mottling and are slowly permeable.
- 3.10 Soil profiles with these characteristics are assessed as WC III or IV depending on the extent of gleying in the upper subsoil and the depth to a slowly permeable horizon, which restricts downward drainage.
- 3.11 Soil profiles have been assessed in line with the climatic regime for each individual site. Sites 1 and 2 have FCD values (193 and 186 respectively) within the 176-225 FCD range whilst Site 3 has fewer FCDs (173) and falls within the 151-175 range. This is important for the assessment of the soil wetness limitation for profiles at each site.
- 3.12 All profiles across Sites 1 and 2 are restricted by wetness and workability. Those assessed as WC IV with a heavy clay loam topsoil are restricted to Grade 4. Those assessed as WC IV with a medium clay loam topsoil or WC III with a heavy clay loam topsoil are restricted to Subgrade 3b. Profiles assessed as WC III with a medium clay loam topsoil are restricted to Subgrade 3a.
- 3.13 Profiles within Site 3 assessed as WC IV with a heavy or a medium clay loam topsoil, or assessed as WC III with a heavy clay loam topsoil, are restricted to Subgrade 3b by soil wetness and workability. Profiles assessed as WC III with a medium clay loam topsoil are restricted to Subgrade 3a, by the same limiting factor.
- 3.14 The collective areas of each ALC grade across the three sites are given in Table 2 and the distribution is shown in Figures RAC/9609/2.1, RAC/9609/2.2 and RAC/9609/2.3.

Table 2: Agricultural land classification

Grade	Description	Area (ha)	% of agricultural land
3a	Good quality	14.4	11
3b	Moderate quality	61.6	49
4	Poor quality	50.7	40
Total Agricultural		126.7	100
Non-Agricultural		3.3	-

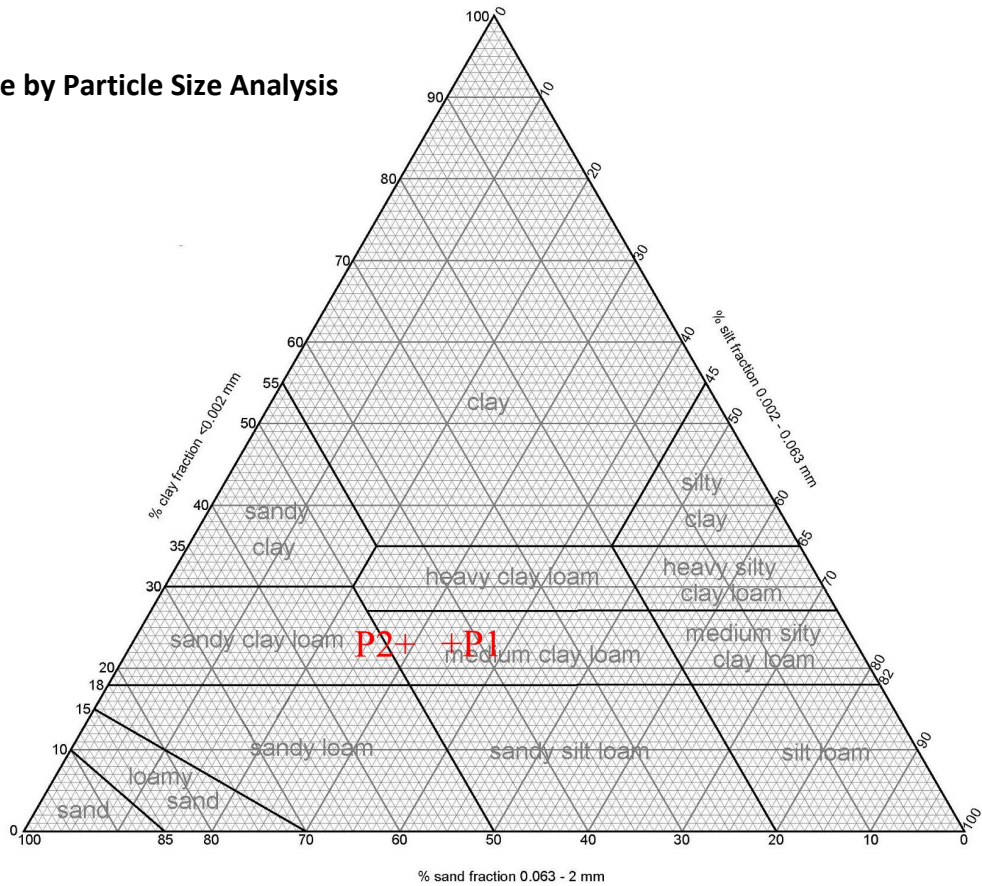
Appendix 1: Laboratory Data

Determinand	P1	P2	Units
Sand 2.00-0.063 mm	43	48	% w/w
Silt 0.063-0.002 mm	34	29	% w/w
Clay <0.002 mm	23	23	% w/w
Organic Matter	3.4	2.4	% w/w
Texture	Medium Clay Loam	Medium Clay Loam	

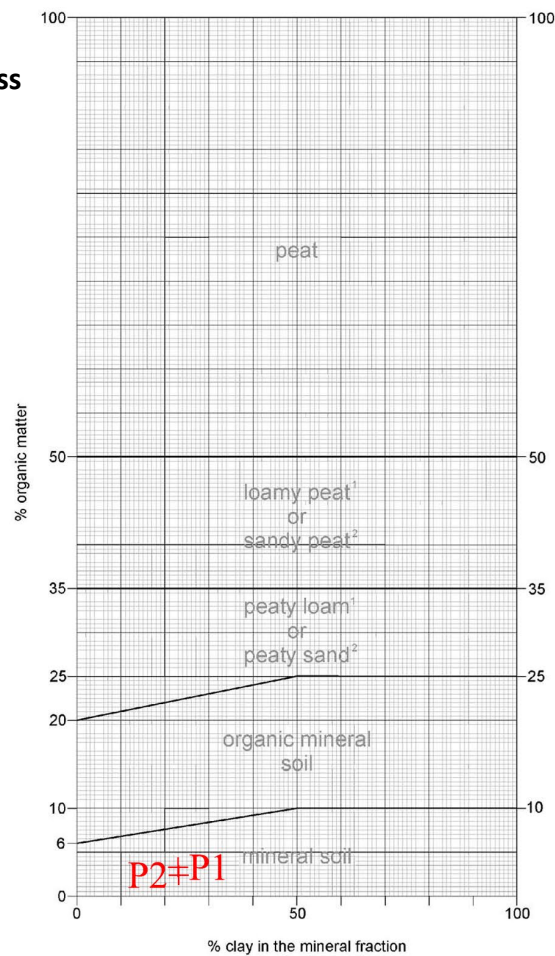
Determinand	P1	P2	Units
Soil pH	5.5	6.9	
Phosphorus (P)	6	31.4	Mg/l (av)
Potassium (K)	32.3	87	Mg/l (av)
Magnesium (Mg)	69.3	105	Mg/l (av)

Determinand	P1	P2	Units
Phosphorus (P)	0	3	ADAS Index
Potassium (K)	0	1	ADAS Index
Magnesium (Mg)	2	3	ADAS Index

Soil Texture by Particle Size Analysis



Organic Matter Class



¹Less than 50% sand in the mineral fraction

² 50% sand or more in the mineral fraction

Appendix 2: Soil Profile Summaries and Droughtiness Calculations

SITE 1

Wetness calculations are made according to the methodology given in Appendix 3 of the ALC guidelines, MAFF 1988
Droughtiness calculations are made according to the methodology given in Appendix 4 of the ALC guidelines, MAFF 1988.
Grades are shown for drought, wetness and any other soil or site factors which are relevant. The overall Grade is set by the most limiting factor and shown on the right.

Stone types			Climate Data		Wetness Class Guidelines						
%	TA _v	EA _v	MDwheat	90	II		III	IV	V		
hard	1	0.5	MDpotato	77	SPL within 80cm, gleying within 40cm		>52cm	<52cm			
N/A			FCD	193	SPL within 80cm, gleying at 40-70cm		>70cm	<70cm			
					No SPL but gleying within 40cm		coarse subsoil	I	other cases		
								II			
hard	pebble										
Maximum depth of auger penetration is <u>underlined</u>											

BH No.		Depth cm	Texture	CaCO ₃	Colour	Mottle colour	abund- ance	stone% Hard	stone% N/A	Struct- ure	APwheat mm	AP potato mm	Gley	SPL	WC	Wetness grade WE	Final Grade	Limiting Factor(s)
1	T	0	36		hCL			0		-	65	65	n	n	IV	4	4	WE
		36	<u>50</u>		C		com	0		poor	18	18	y	y				
		50	120		C		com	0		poor	49	26	y	y				
										Total	132	109						
										MB	42	32						
										Droughtiness grade (DR)		1	1					
2	T	0	38		hCL			0			68	68	n	n	III	3b	3b	WE
		38	58		hCL		com	0			27	32	y	n				
		58	<u>80</u>		C		many	0		poor	15	16	y	y				
		80	120		C		many	0		poor	28	0	y	y				
										Total	139	116						
										MB	49	39						
										Droughtiness grade (DR)		1	1					
3	T	0	28		hCL		mmf	0			50	50	y	n	III	3b	3b	WE
		28	60		hCL		mmd	0			45	51	y	n				
		60	120		C		cmd	0		poor	42	13	y	y				
										Total	138	115						
										MB	48	38						
										Droughtiness grade (DR)		1	1					

Droughtiness grade (DR)													1	1			
4	T	0	28	hCL	10YR4/2			0		50	50	n	n	///	3b	3b	WE
		28	<u>42</u>	hCL	10YR5/3	och	mmd	0		22	22	y	n				
		42	60	hCL	10YR5/3	och	mmd	0		23	29	y	n				
		60	120	C	7.5YR5/2	red	cmd	0	poor	42	13	y	y				
									Total	138	115						
									MB	48	38						
Droughtiness grade (DR)													1	1			
5	T	0	<u>25</u>	mCL	10YR4/2			0		45	45	n	n	///	3a	3a	WE
		25	40	hCL	10YR4/3			0		24	24	n	n				
		40	60	hCL	10YR4/3	och	ffp	0		26	32	n	n				
		60	120	C	7.5YR5/2	och	mmp	0	poor	42	13	y	y				
									Total	137	114						
									MB	47	37						
Droughtiness grade (DR)													1	1			
6/P1	T	0	20	mCL	10YR4/2			0		36	36	n	n	///	3a	3a	WE
		20	40	hCL	10YR4/3			0		32	32	n	n				
		40	<u>60</u>	hCL	10YR4/3	och	ffp	0		26	32	n	n				
		60	120	C	7.5YR5/2	och	mmp	0	poor	42	13	y	y				
									Total	136	113						
									MB	46	36						
Droughtiness grade (DR)													1	1			

SITE 2

Stone types		
%	TA _v	EA _v
hard	1	0.5
N/A		

hard pebble

Climate Data	
MDwheat	92
MDpotato	80
FCD	186

Wetness Class Guidelines	II	III	IV	V
SPL within 80cm, gleying within 40cm	>78cm	50-78cm	<50cm	
SPL within 80cm, gleying at 40-70cm	>67cm	<67cm		
No SPL but gleying within 40cm	coarse subsoil	I	other cases	II

Maximum depth of auger penetration is underlined

Site No.		Depth cm	Texture	CaCO ₃	Colour	Mottle colour	abund- ance	stone% hard	stone% N/A	Struct- ure	APwheat mm	AP potato mm	Gley	SPL	WC	Wetness grade WE	Final Grade	Limiting Factor(s)
7	T	0	35		7.5YR4/3			0		-	63	63	n	n	IV	4	4	WE
		35	39		7.5YR4/2	och	com	0			6	6	y	n				
		39	<u>60</u>		5YR5/3	och	many	0		poor	21	27	y	y				
		60	120		5YR5/3	och	many	0		poor	42	13	y	y				
										Total	133	110						
										MB	41	30				SJ33232 45182		
										Droughtiness grade (DR)	1	1						
8	T	0	39		7.5YR4/3			0		-	70	70	n	n	IV	4	4	WE
		39	<u>50</u>		5YR5/3	och	com	0		poor	14	14	y	y				
		50	120		5YR5/3	och	com	0		poor	49	26	y	y				
										Total	134	111						
										MB	42	31						
										Droughtiness grade (DR)	1	1						
9	T	0	30		10YR3/2			0		-	54	54	n	n	IV	4	4	WE
		30	40		10YR4/2	och	cmd	0			16	16	y	n				
		40	120		7.5YR5/3	och	cmd	0		poor	62	39	y	y				
										Total	132	109						
										MB	40	29						
										Droughtiness grade (DR)	1	1						
10	T	0	30		10YR3/2	och	fmd	0		-	54	54	n	n	IV	4	4	WE
		30	<u>40</u>		7.5YR5/3	och	cmd	0			16	16	y	n				
		40	120		7.5YR5/3	och	cmd	0		poor	62	39	y	y				

										Total	132	109					
										MB	40	29					
										Droughtiness grade (DR)	1	1					
11	T	0	38	hCL	7.5YR4/3			0	-	68	68	n	n	IV	4	4	WE
		38	50	C	7.5YR5/3	och	com	0	poor	16	16	y	y				
		50	120	C	7.5YR5/3	och	com	0	poor	49	26	y	y				
										Total	133	110					
										MB	41	30					
										Droughtiness grade (DR)	1	1					
12	T	0	38	hCL	7.5YR4/3			0	-	68	68	n	n	IV	4	4	WE
		38	50	C	7.5YR5/3	och	many	0	poor	16	16	y	y				
		50	120	C	7.5YR5/3	och	many	0	poor	49	26	y	y				
										Total	133	110					
										MB	41	30					
										Droughtiness grade (DR)	1	1					
13	T	0	25	hCL	10YR3/2	och,femn	mmd	0	-	45	45	n	n	IV	4	4	WE
		25	120	C	7.5YR5/3	och	cmd	0	poor	82	59	y	y				
												Total	126	104			
										MB	34	24					
										Droughtiness grade (DR)	1	1					
14	T	0	20	hCL	10YR3/2	och	cmd	0	-	36	36	n	n	IV	4	4	WE
		20	25	hCL	10YR3/3	och	cmd	0		8	8	n	n				
		25	120	C	7.5YR5/3	och	cmd	0	poor	82	59	y	y				
										Total	126	103					
										MB	34	23					
										Droughtiness grade (DR)	1	1					
15	T	0	28	hCL	10YR3/2	och	cmd	0	-	50	50	n	n	IV	4	4	WE
		28	40	C	7.5YR5/3	och	cmd	0		19	19	y	n				
		40	120	C	7.5YR5/3	och	cmd	0	poor	62	39	y	y				

										Total	132	109						
										MB	40	29						
										Droughtiness grade (DR)	1	1						
16	T	0	25	hCL	10YR3/2	och	cmd	0	-	45	45	n	n	IV	4	4	WE	
			25	120	C	7.5YR5/3	och	cmd	0	poor	82	59	y	y				
											Total	126	104					
											MB	34	24					
												Droughtiness grade (DR)	1	1				
17	T	0	38	hCL	7.5YR3/3			0		68	68	n	n	IV	4	4	WE	
			38	40	hCL	5YR4/2	och	com	0		3	3	y	n				
		40	120	C	5YR5/3	och	com	0	poor	62	39	y	y					
																		Total
											MB	42	31					
										Droughtiness grade (DR)	1	1						
18	T	0	39	mCL	7.5YR3/3			0		70	70	n	n	IV	3b	3b	WE	
			39	80	C	7.5YR5/3	och	com	0	poor	35	40	y	y				
		80	120	C	7.5YR5/3	och	com	0	poor	28	0	y	y					
																		Total
											MB	42	31					
										Droughtiness grade (DR)	1	1						
19	T	0	38	hCL	7.5YR3/3			0	-	68	68	n	n	IV	4	4	WE	
			38	40	hCL	7.5YR5/3	och	com	0		3	3	y	n				
		40	120	C	7.5YR5/3	och	com	0	poor	62	39	y	y					
																		Total
											MB	42	31					
										Droughtiness grade (DR)	1	1						
20	T	0	30	mCL	10YR3/2	och	fff	0	-	54	54	n	n	III	3a	3a	WE	
			30	60	C	10YR5/3	och	cmd	0		40	48	y	n				
		60	120	C	10YR5/3	och	cmd	0	poor	42	13	y	y					

										Total	136	115					Maize - Almost hCL TS			
										MB	44	35								
										Droughtiness grade (DR)		1	1							
21	T	0	40	mCL	10YR4/2	och	fff	0	-	72	72	n	n	IV	3b	3b	WE			
		40	120	C	10YR5/3	red,och	cmd	0	poor	62	39	y	y							
											Total	134	111							
											MB	42	31							
										Droughtiness grade (DR)		1	1							
22	T	0	25	mCL	10YR3/2	och	fmd	0	-	45	45	n	n	IV	3b	3b	WE			
		25	45	C	10YR5/3	och	cmd	0		32	32	y	n							
		45	120	C	10YR5/3	och	cmd	0	poor	56	33	y	y							
											Total	132	110							
										Droughtiness grade (DR)		1	1							
23	T	0	38	hCL	7.5YR4/3			0	-	68	68	n	n	IV	4	4	WE			
		38	60	C	5YR5/3	och	com	0	poor	23	29	y	y							
		60	120	C	5YR5/3	och	com	0	poor	42	13	y	y							
											Total	133	110							
										Droughtiness grade (DR)		1	1							
24	T	0	30	hCL	7.5YR3/3			0	-	54	54	n	n	III	3b	3b	WE			
		30	55	hCL	7.5YR4/1	och	com	0		37	40	y	n							
		55	60	C	7.5YR5/3	och	com	0	poor	4	7	y	y							
		60	120	C	5YR5/3	och	com	0	poor	42	13	y	y							
										Total	136	114								
										Droughtiness grade (DR)		1	1							
26	T	0	38	hCL	7.5YR3/3			0	-	68	68	n	n	IV	4	4	WE			
		38	60	C	5YR5/3	och	many	0	poor	23	29	y	y							

		60	120	C		5YR5/3	och	many	0	poor	42	13	y	y			
										Total	133	110					
										MB	41	30					
										Droughtiness grade (DR)	1	1					
28	T	0	20	hCL		10YR3/2	och	fmd	0	-	36	36	n	n	IV	4	4
		20	30	C		10YR5/3	och	cmd	0		16	16	y	n			
		30	120	C		7.5YR5/3	och	cmd	0	poor	75	52	y	y			
										Total	127	104					
										MB	35	24					
										Droughtiness grade (DR)	1	1					
29	T	0	30	mCL		10YR3/2	och	fmd	0	-	54	54	n	n	IV	3b	3b
		30	40	C		10YR5/3	och	cmd	0		16	16	y	n			
		40	120	C		7.5YR5/3	och	cmd	0	poor	62	39	y	y			
										Total	132	109					
										MB	40	29					
										Droughtiness grade (DR)	1	1					

SITE 3

Stone types		
%	TAv	EAv
hard	1	0.5
.		

hard pebble

Climate Data	
MDwheat	103
MDpotato	94
FCD	173

Wetness Class Guidelines	II	III	IV	V
SPL within 80cm, gleying within 40cm	>75cm	47-75cm	<47cm	
SPL within 80cm, gleying at 40-70cm	>62cm	<62cm		
No SPL but gleying within 40cm	coarse subsoil	I	other cases	II

Maximum depth of auger penetration is underlined

Site		Depth		Texture	CaCO ₃	Colour	Mottle	abund-	stone%	stone%	Struct-	APwheat	AP potato	Gley	SPL	WC	Wetness	Final	Limiting
No.		cm					colour	ance	hard	.	ure	mm	mm				grade WE	Grade	Factor(s)
30	T	0	38	hCL		7.5YR3/4			0		-	68	68	n	n	IV	3b	3b	WE
		38	43	C		7.5YR5/3	och	many	0		poor	7	7	y	y				
		43	120	C		7.5YR5/3	och	many	0		poor	58	35	y	y				
													Total	133	110				
													MB	30	16				
		Droughtiness grade (DR)											1	1					
31	T	0	30	hCL		7.5YR3/4			0			54	54	n	n	IV	3b	3b	WE
		30	38	hCL		7.5YR5/3	och	many	0			13	13	y	n				
		38	120	C		7.5YR5/3	och	many	0		poor	65	42	y	y				
													Total	131	108				
													MB	28	14				
		Droughtiness grade (DR)											2	1					
39	T	0	30	C		10YR4/2	och	mmd	0		-	51	51	y	n	IV	3b	3b	WE
		30	45	C		7.5YR4/2	och	cmd	0			24	24	y	n				
		45	120	C		7.5YR5/3	och	cmd	0		poor	56	33	y	y				
													Total	130	108				
													MB	27	14				
		Droughtiness grade (DR)											2	1					
40	T	0	35	hCL		10YR4/2			0		-	63	63	n	n	III	3b	3b	WE
		35	50	C		7.5YR4/2	och	cmd	0			24	24	y	n				
		50	120	C		7.5YR5/3	och	cmd	0		poor	49	26	y	y				
													Total	136	113				
													MB	33	19				
		Droughtiness grade (DR)											1	1					
41	T	0	30	mCL		10YR4/2	och	fmd	0		-	54	54	n	n	III	3a	3a	WE
		30	55	hCL		10YR5/3	och	cmd	0			37	40	y	n				

		55	120	C	7.5YR4/2	och	cmd	0	poor	46	20	y	y				
									Total	136	114						
									MB	33	20						
									Droughtiness grade (DR)	1	1						
42	T	0	28	hCL	10YR4/2	och	ffd	0	-	50	50	n	n	IV	3b	3b	WE
		28	45	C	7.5YR4/2	och	cmd	0		27	27	y	n				
		45	120	C	7.5YR4/2	och	cmd	0	poor	56	33	y	y				
									Total	133	110						
									MB	30	16						
									Droughtiness grade (DR)	1	1						
43	T	0	30	hCL	10YR4/2	och	fmd	0	-	54	54	n	n	IV	3b	3b	WE
		30	45	C	7.5YR4/2	och	cmd	0		24	24	y	n				
		45	120	C	7.5YR4/2	och	cmd	0	poor	56	33	y	y				
									Total	134	111						
									MB	31	17						
									Droughtiness grade (DR)	1	1						
44	T	0	38	hCL	7.5YR4/3			0	-	68	68	n	n	IV	3b	3b	WE
		38	40	C	7.5YR5/3	och	com	0	poor	3	3	y	y				
		40	120	C	7.5YR5/3	och	com	0	poor	62	39	y	y				
									Total	133	110						
									MB	30	16						
									Droughtiness grade (DR)	1	1						
45	T	0	30	hCL	7.5YR4/3			0	-	54	54	n	n	IV	3b	3b	WE
		30	33	hCL	5YR5/3	och	com	0		5	5	y	n				
		33	38	hCL	7.5YR5/3	och	com	0		8	8	y	n				
		38	120	C	7.5YR5/3	och	com	0	poor	65	42	y	y				
									Total	131	108						
									MB	28	14						
									Droughtiness grade (DR)	2	1						

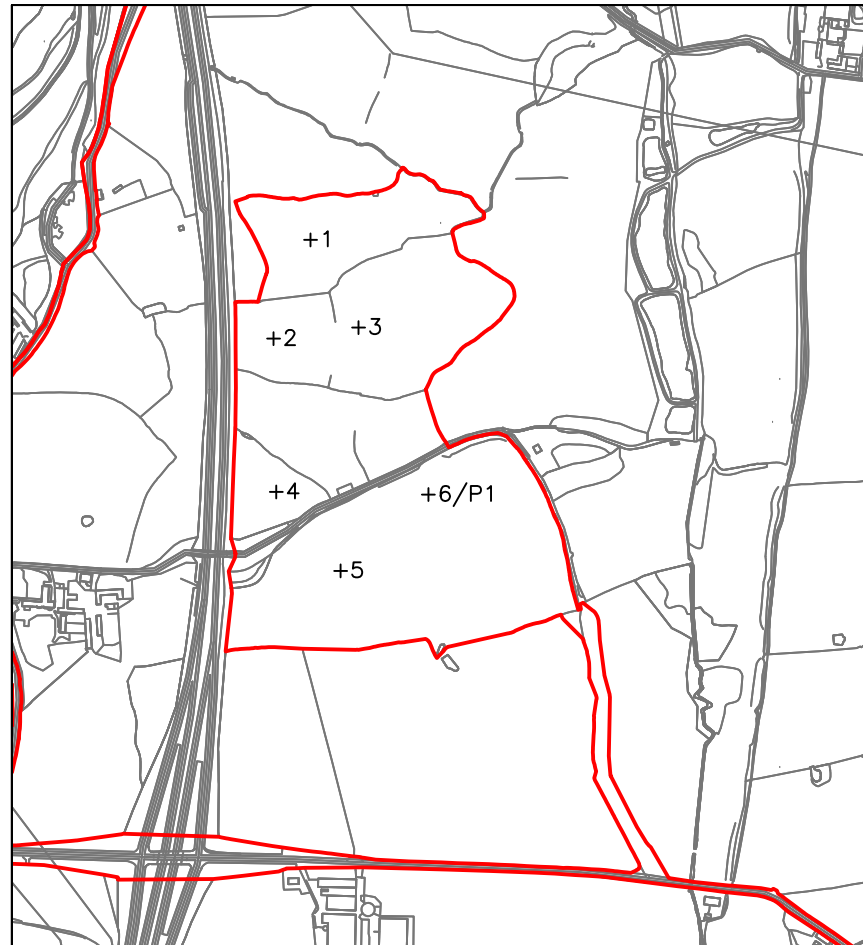
Appendix 3: Soil Pit Photographs

Pit 1

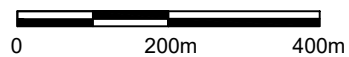



Pit 2




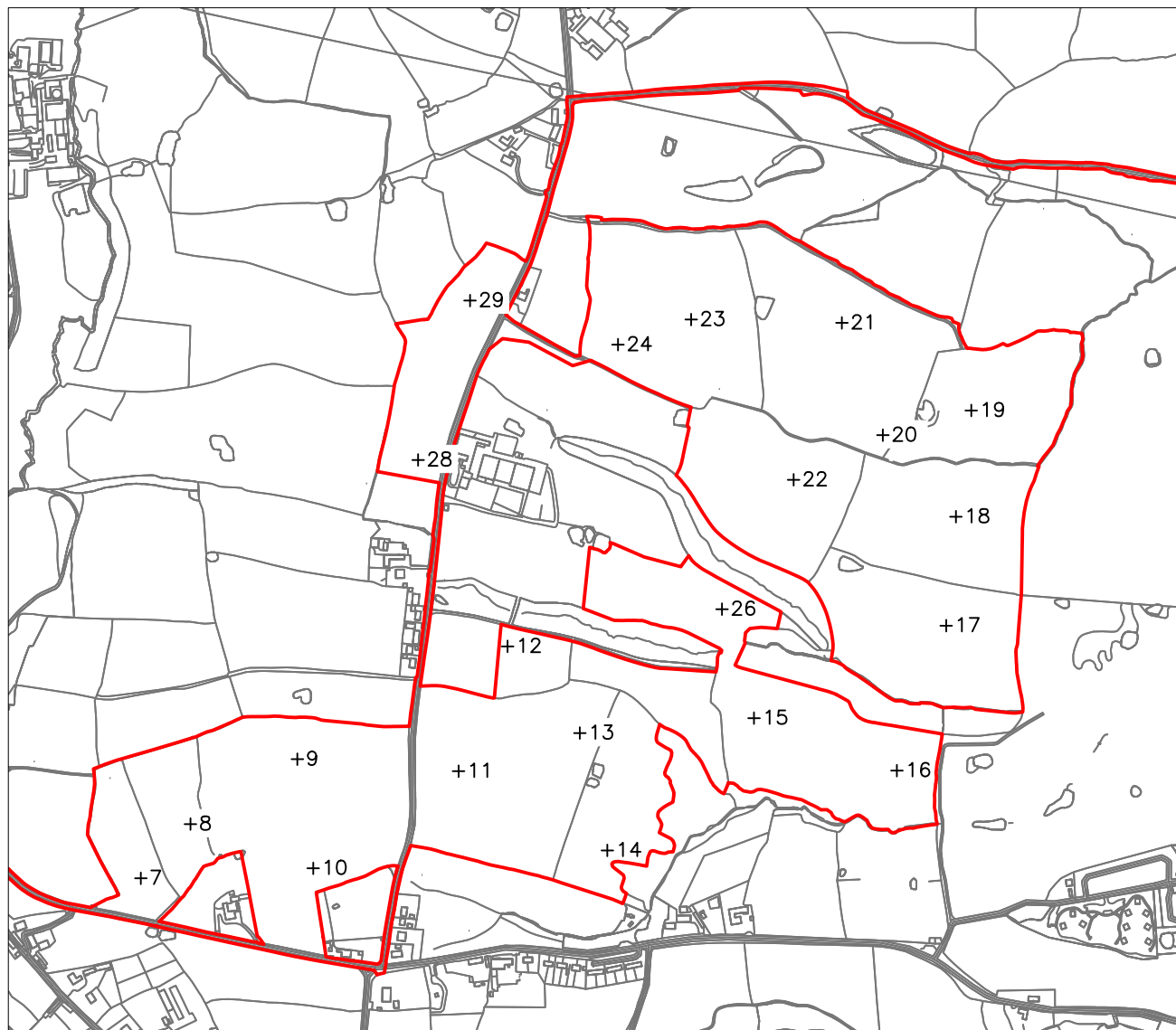


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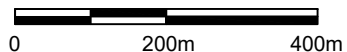


KEY	
	Scheme boundary
+1	Observations
+P	Pit

A	Scheme boundary	08/25
-	-	08/22
Rev.	Comment	Date
Drawing title OBSERVATION MAPPING, SITE 1		
Contract LAND SOUTH OF WREXHAM, WALES,		
Reading Agricultural Consultants Ltd Gate House Beechwood Court Long Toll Woodcote RG8 0RR 01491 684233 www.reading-ag.com		
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1:10,000



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KEY



Scheme boundary


+1

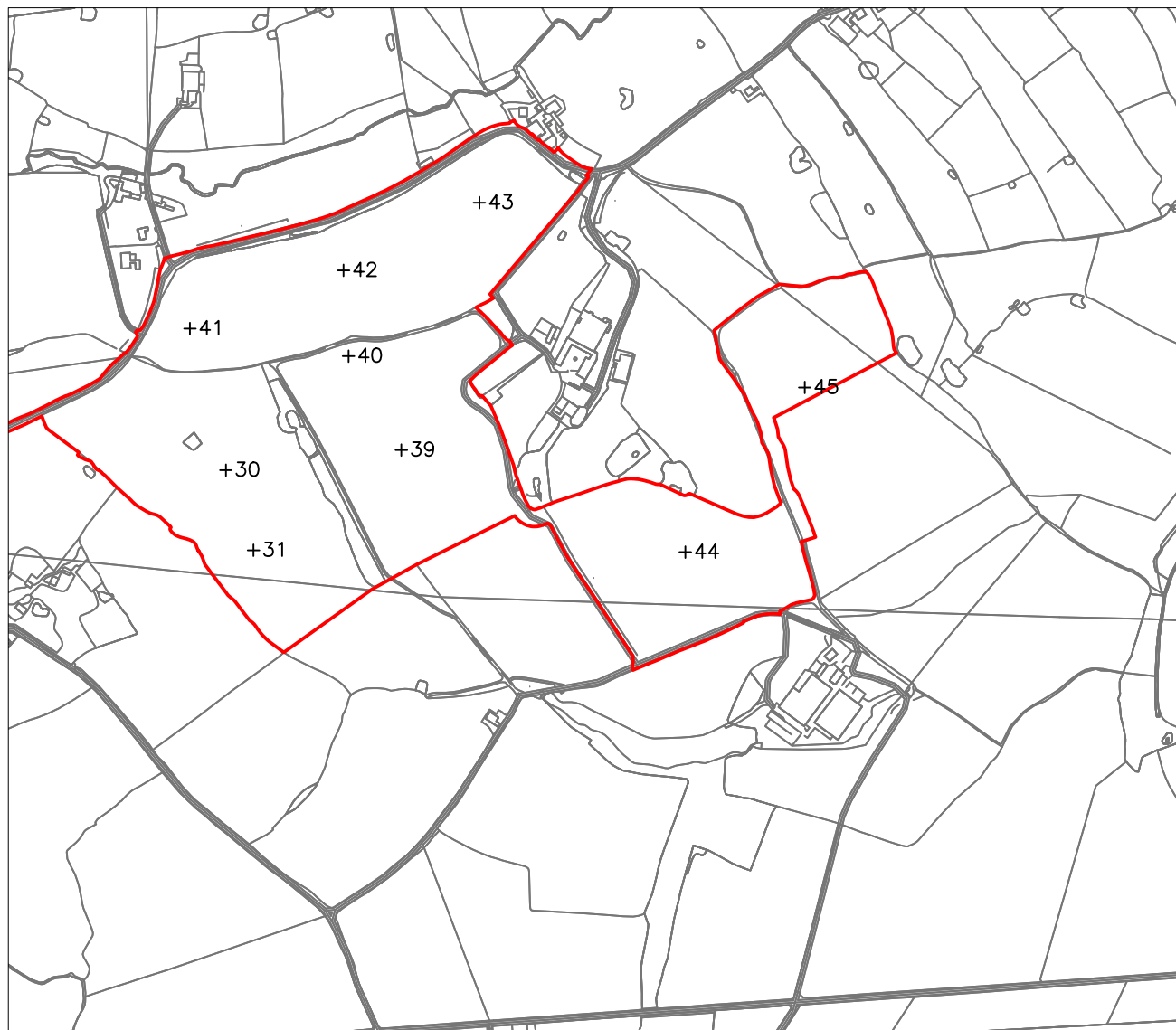
Observations

+P

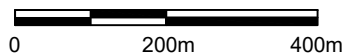
Pit

Observations 25 and 27
removed from scope

A	Scheme boundary	08/25
-	-	08/22
Rev.	Comment	Date
Drawing title OBSERVATION MAPPING, SITE 2		
Contract LAND SOUTH OF WREXHAM, WALES,		
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KEY



Scheme boundary

+1

Observations

+P

Pit

Observations 32–38 and 46–53 removed from scope

Rev.	Comment	Date
A	Scheme boundary	08/25
–	–	08/22

Drawing title
OBSERVATION MAPPING, SITE 3

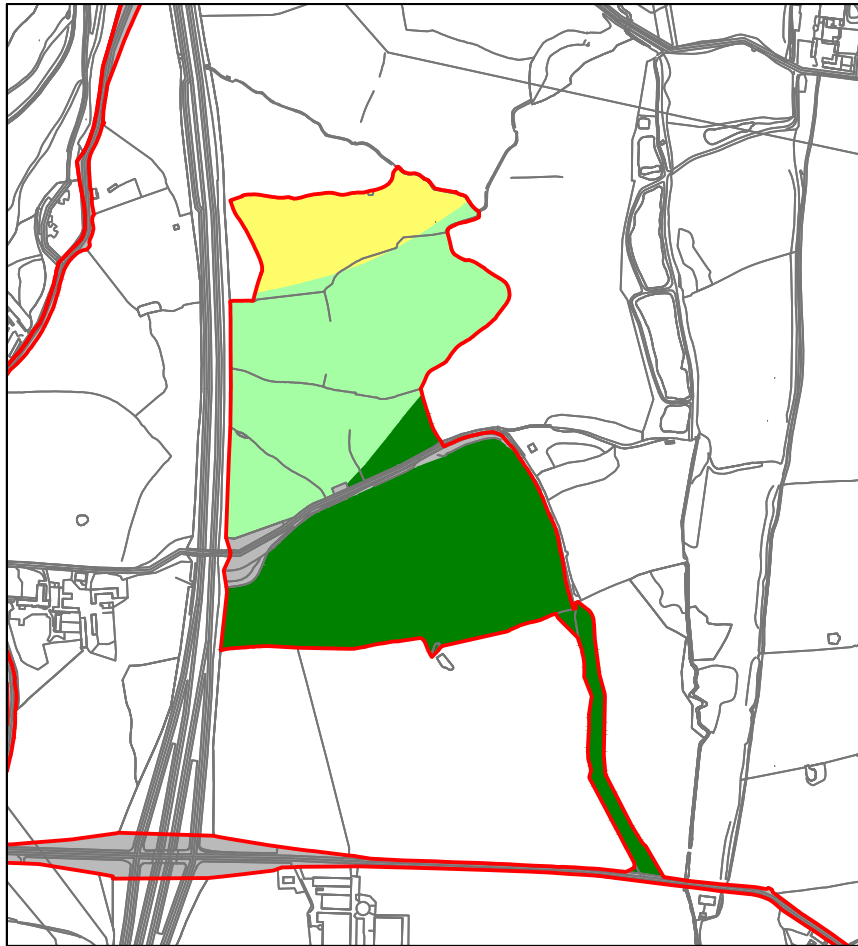
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RG8 0RR
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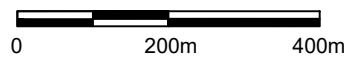


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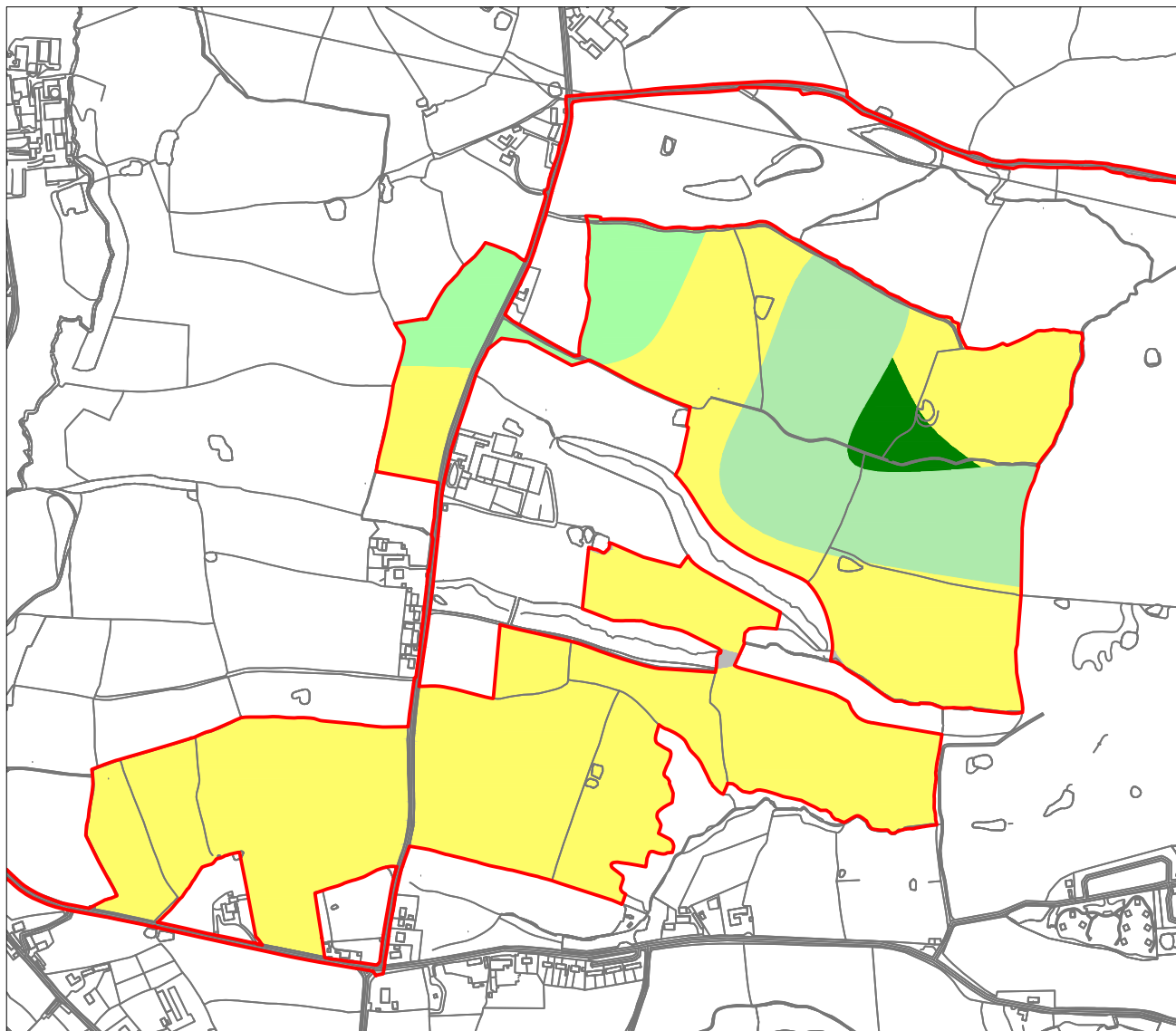
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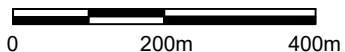
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Grade 1		Grade 4	
Grade 2		Grade 5	
Subgrade 3a		Non-agricultural	
Subgrade 3b		Not present	

A	Scheme boundary	08/25
-	-	08/22
Rev.	Comment	Date
Drawing title AGRICULTURAL LAND CLASSIFICATION, SITE 1		
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Grade 2		Grade 5	
Subgrade 3a		Non-agricultural	
Subgrade 3b		Not present	

A	Scheme boundary	08/25
-	-	08/22
Rev.	Comment	Date

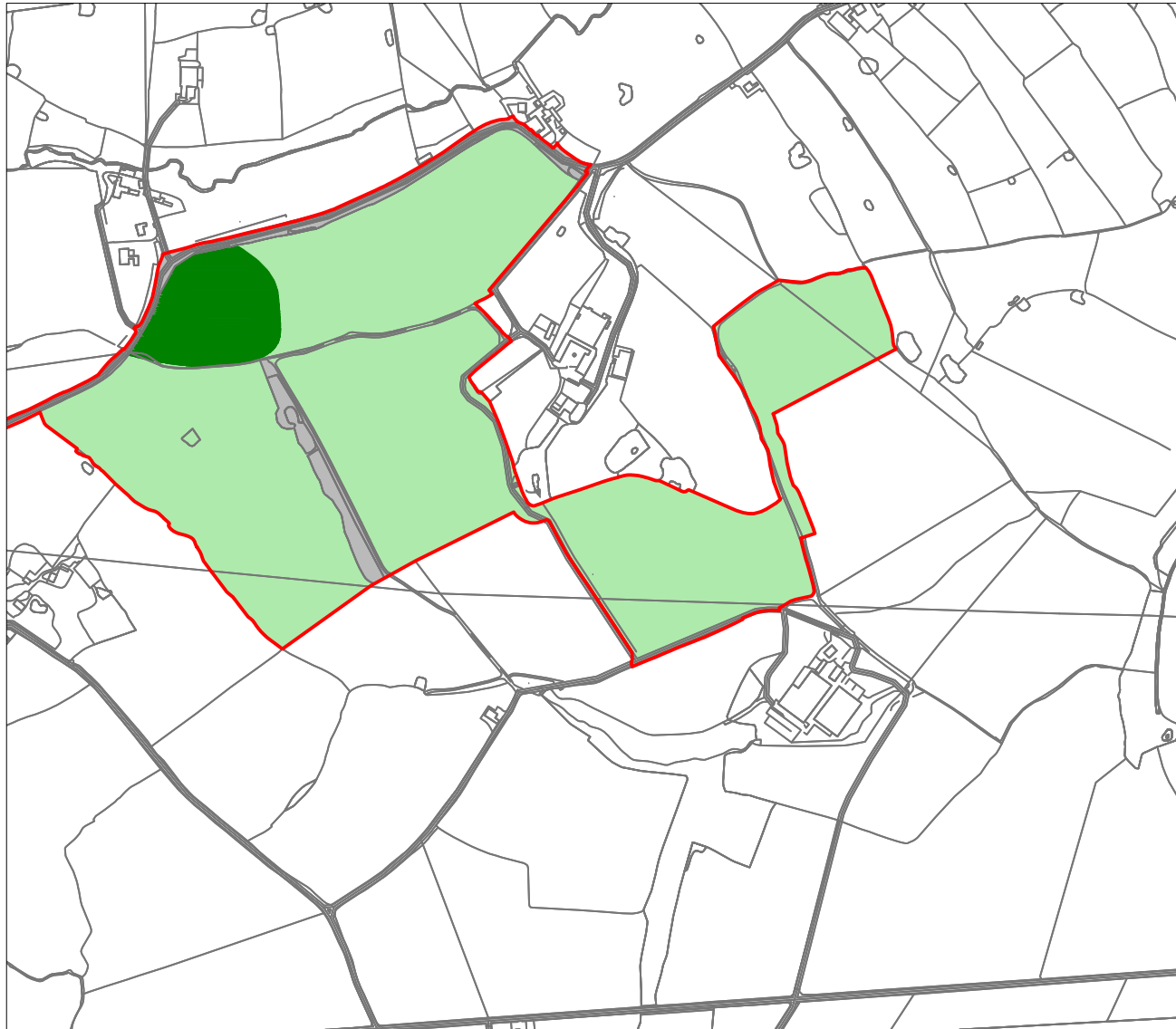
Drawing title
AGRICULTURAL LAND
CLASSIFICATION, SITE 2

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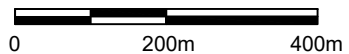
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Grade 1		Grade 4	
Grade 2		Grade 5	
Subgrade 3a		Non-agricultural	
Subgrade 3b		Not present	

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-	-	08/22
Rev.	Comment	Date
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